

ABSTRACT OF THE DISCLOSURE

A three-dimensional coordinate calculating part calculates a three-dimensional coordinate of each point of an object in accordance with position information of position at which a picture of the object is taken and an image obtained as a result of the object on which pattern light is projected is taken. A three-dimensional shape composing part expresses each point by a coordinate in a single coordinate system in accordance with at least two three-dimensional coordinate calculated for each point by the three-dimensional coordinate calculating part based on respective images obtained as a result of a picture of the object on the light having the predetermined pattern is applied being taken from at least two different positions.